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(19) **United States**(12) **Patent Application Publication****Matsuyuki et al.**(10) **Pub. No.: US 2017/0054318 A1**(43) **Pub. Date: Feb. 23, 2017**(54) **3D SHAPED INDUCTIVE CHARGING COIL
AND METHOD OF MAKING THE SAME**(71) Applicant: **APPLE INC.**, Cupertino, CA (US)(72) Inventors: **Naoto Matsuyuki**, Nagoyo (JP);
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(57)

ABSTRACT

A three-dimensional inductive charging coil assembly and a method of making the same. The method can include patterning a first conductive layer affixed to a first surface of an insulating layer to form a coil configured to transmit or receive power, patterning a second conductive layer affixed to a second surface of the insulating layer opposite the first surface to form a conductive trace element, and electrically coupling the coil and the conductive trace element. The coil, insulating layer, and conductive trace element can be molded (e.g., simultaneously) into a three dimensional shape. In some embodiment, the molding can include a thermoforming process such as compression molding, vacuum forming, or the like.

